

Compliments (W.F.A.N.)
A. A. Hausman Norland

EDITED UNDER THE AUSPICES OF THE ALUMNI AND FACULTY OF MEDICINE
OF THE UNIVERSITY OF MICHIGAN

[illegible]

CONTENTS

[illegible]

UNIVERSITY OF MICHIGAN LIBRARY
ANN ARBOR, MI 48106-1000
TEL: 734 763 1000 FAX: 734 763 1001
WWW.UMICH.EDU

GESTATIONAL COMPLICATIONS AND DYSTOCIA
SUBSEQUENT TO ANTERIOR FIXATION
OF THE UTERUS.

Assistant Demonstrator of Obstetrics in the University of Pennsylvania; Instructor in Gynecology in the Philadelphia Polyclinic, etc.

presented by the author

588-

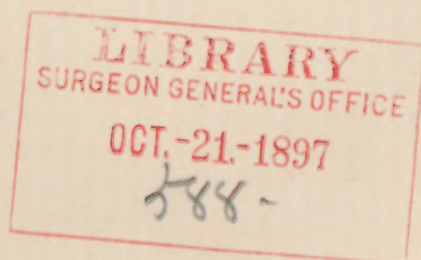
GESTATIONAL COMPLICATIONS

AND

DYSTOCIA SUBSEQUENT

TO

ANTERIOR FIXATION OF THE UTERUS.



GESTATIONAL COMPLICATIONS AND DYSTOCIA SUBSEQUENT TO ANTERIOR FIXATION OF THE UTERUS.¹

BY W. A. NEWMAN DORLAND, A.M., M.D.,

Philadelphia,

Assistant Demonstrator of Obstetrics in the University of Pennsylvania; Instructor in Gynecology in the Philadelphia Polyclinic, etc.

(I) INTRODUCTORY.

WHEN, in 1885, Dr. Howard A. Kelly first introduced the operation of abdominal hysteropexy—or, as he has more recently termed it, “uterine suspension”—as a substitute for the time-honored Alexander operation, the entire medical world welcomed the innovation as a decided improvement over the latter method in the treatment of uterine retro-displacement. The shortening of the round ligaments by the inguinal method had not met with a degree of success proportionate to the urgency of the condition, and the percentage of failures, taken in association with the difficulties of the operation in the hands of the less skilful surgeons, was a strong incentive to the adoption of a method that offered better promise of success, and at the same time was decidedly less complicated in its technique. The most radical objection that could at that time, and for a few years subsequently, be urged against the adoption of the new operation in its improved form of direct suspension was that it involved the opening of the peritoneal cavity with all of the risks attendant thereon; but the marvellous progress that had been made in abdominal antisepsis had largely annulled the force of such an objection, and the operation rapidly grew in favor with the gynecologists.

It was not long, however, before disturbing rumors began to circulate as to the pernicious influence of the method upon subsequent pregnancies and labors. While it was not true of every case, the number of reported instances of dystocia of greater or lesser severity offered sufficient ground for apprehension, and efforts were made by various operators throughout the world to so modify the technique of the uterine fixation as to obviate the danger of subsequent difficulty in pregnancy and parturition. Thus, there has arisen a large number of methods of anterior fixation of the uterus having for their double object the restoration of the displaced organ to its normal position, without at the same time producing such a degree

¹ Read before the Barton Cooke Hirst Obstetrical Society of the University of Pennsylvania, November 4, 1896.

of fixation of the organ as to interfere materially with its functions of gestation and parturition.

(2) METHODS OF ANTERIOR FIXATION.

These methods and modifications of methods may be conveniently classified, according to the essential principle involved in their performance, into five main groups, as follows: (1) Those methods depending for the reposition of the uterus upon a shortening of the round ligaments; (2) the varieties of ventrofixation; (3) the methods of vaginofixation; (4) vesicofixation; and (5) cervicofixation, or trachelopexy. Briefly enumerated, this classification embraces the following operations:

(1) *Shortening of the Round Ligaments*.—(1) Alexander's operation, the drawing out and amputation of these ligaments in the inguinal canal after bimanual anteversion of the uterus.

(2) Wylie's operation. Intraperitoneal shortening of the round ligaments. (Each ligament is grasped by a couple of forceps in such a manner that it will be divided as nearly as possible into three equal portions; by lapping these portions the ligament is doubled on itself twice, and three thicknesses of ligament are placed between the side of the pelvis and the anterior wall of the uterus. The ligatures must not be drawn tight enough to constrict the circulation.)¹

(3) Polk's operation. Intraperitoneal shortening of the round ligaments. (The slack in each ligament is taken up in front of the uterus, and the two ligaments are fastened together by sutures.)²

(2) *Varieties of Ventrofixation*.—(1) Kelly's operation. Suspension uteri, including median abdominal incision, separation of peritoneal adhesions, ante flexion of the uterus, and suturing of the posterior surface of the uterine fundus to the peritoneum and subperitoneal fascia of the anterior abdominal parietes between the lower angle of the incision and the bladder.

(2) Fowler's operation. A variety of ventrofixation in which the uterus is fixed by making use of the superior ligament of the bladder for the purpose of forming an artificial utero-ventral ligament. This prominent fold of peritoneum extends from the summit of the bladder to the umbilicus, and encloses the urachus and the obliterated hypogastric arteries.³

(3) Czerny's and Leopold's operation. A variety of ventrofixation in which the anterior aspect of the body and the fundus uteri are sutured directly to the abdominal wall. The stitches are afterwards removed, whereby the uterus is left more mobile than in cases in which the sutures are retained.⁴

(4) Olshausen's operation. A variety of ventrofixation in which

the uterus is fixed by suturing the points of uterine insertion of the round ligaments and a portion of the broad ligaments to the abdominal wall.⁴

(3) *Varieties of Vaginofixation.*—Schücking's operation. (1) The primary vaginal fixation. (The uterus being bimanually anteverted, a threaded needle, enclosed in a canula, is passed from the os through the cavum uteri to the fundus, where it is pushed through the wall and the anterior cul-de-sac; the ends of the thread are firmly tied, fixing the fundus, in strong anteflexion, to the anterior vaginal wall, where it is eventually held by bands of adhesive lymph.)⁵

(2) Mackenrodt's operation.⁶ Vaginofixation, including a median longitudinal incision in the anterior vaginal wall, opening the vesico-uterine pouch, and extending from the centre of the cervix to within an inch of the meatus urinarius; anteversion of the uterus; and suturing of the fundus to the vaginal wall, thus obliterating the vesico-uterine space. (It is claimed that this operation fixes the uterus in a position corresponding more closely to the normal than do ventrofixation and Alexander's operation, but Leopold⁷ claims that after this operation the relations of the uterus to the bladder are entirely abnormal, the uterus is fixed in an unnatural position, and, unless Douglas's pouch is first opened and all adhesions thoroughly separated, it is useless. To the obliteration of the vesico-uterine space must be attributed the bladder symptoms, occasionally noted after this operation.)

(3) Dührssen's operation.^{8, 9} Vaginal celiotomy. (This includes a transverse incision through the anterior vaginal wall close to the cervical attachment; dissection away of the bladder and opening of the vesico-uterine pouch; passage of the fixation-sutures as near the fundus as possible, which is secured to the edges of the vaginal wound; and closure of the vaginal incision—now converted into a longitudinal wound—by a continuous catgut suture.)

(4) Vineberg's⁴ and Wertheim's operation.¹⁰ A variety of vaginofixation in which the round ligaments, and not the fundus, are sutured to the vagina. (Vineberg supplements this by an additional suture passed across the anterior surface of the uterus midway between the internal os and the fundus and carried through the vaginal flaps. Wertheim primarily sutured the round ligaments to both angles of the peritoneal wound, or to the bladder at the reflection of the peritoneum, and not directly to the vaginal wall.)

(4) *Varieties of Vesicofixation.*—(1) Vesicofixura uteri.¹¹ An operation recently adopted by Mackenrodt.

(2) Byford's operation¹² (comprises anterior colpotomy; suture of the fundus uteri to the peritoneal covering of the upper portion

of the bladder; suture of the round ligament to the uterus above its normal uterine insertion at a point as far towards the pubic extremity as can be grasped; and closure of the vaginal wound in such a way that the bladder regains its vaginal and uterine attachments, and the connective tissue from either side of the anterior fornix is drawn together in front of the uterus and forces the cervix backward. Byford claims that this operation "possesses an advantage over vaginal fixation in that the position of the uterus is normal, the bladder resumes its normal relation to the uterus and vagina, and there is only slight liability to complications in childbirth. The attachment of the fundus is peritoneal and less firm than that from ordinary ventral fixation, and will undoubtedly stretch during pregnancy").

(5) *Varieties of Cervicofixation or Trachelopexy*.—(1) Richelof's operation⁵ (comprises loosening of all adhesions; bimanual anteversion of the uterus; freshening of the posterior surface of the vaginal portion of the cervix; and suturing of this to the posterior vaginal wall).

(2) Frommel's operation⁵ (comprises loosening of the uterus from its connections; anteversion of the organ; suturing of the recto-uterine ligaments in the neighborhood of their origin from the uterus to the peritoneum of the lateral pelvic wall).

(3) Freund's operation² (comprises suture of the utero-sacral ligaments to the posterior wall of Douglas's pouch, and obliteration of the pouch by aseptic adhesive inflammation by the use of iodoform gauze).

(3) TESTIMONY OF WRITERS.

That the danger of dystocia subsequent to any of the foregoing operations is not a fictitious or supposititious one the statements of many writers certify. Hennig⁵ remarks that "pregnancy may be disturbed and even interrupted by the fixation." Mackenrodt¹⁸ states that a normal pregnancy and labor are only possible when the adhesions following the operation of uterine suspension gradually loosen spontaneously. If this does not occur, abortion will follow, or a critical condition develop during labor, threatening rupture of the uterus, with loss of mother and child. Should pregnancy and labor be successfully endured, it is very probable that the retroflexion will again develop. In cases in which the uterus has been brought by operation into marked anteflexion, the tubes are usually forced downward and backward, and becoming pathologically adherent conception is less probable. It is a better operation to suspend the uterus by ventrofixation than by vaginal fixation, because it is possible for the adhesions to more readily loosen spontaneously, and danger of hemorrhage and sepsis is less. These remarks apply es-

pecially to vaginal fixation of the uterus through the fundus. When, on the contrary, vaginal fixation is performed through the interior of the uterus, the conditions are more favorable for future conception and normal pregnancy and labor. Graefe¹⁴ advises against performing the operation of vaginal fixation on women capable of bearing children, and recommends in its place ventral fixation or Alexander's operation. Olshausen¹⁵ remarks that the suturing of the anterior wall, which is so warmly advocated in many quarters, offers the objection that it forms a too rigid and dense adhesive band, which is liable to give trouble in the event of pregnancy from overstretching of the posterior wall of the uterus. Noble¹⁶ writes, "My preference is to shorten the round ligaments in cases having no adhesions, if the patient is young and liable to become pregnant, as I believe that pregnancy and labor are less likely to be interfered with than is the case when the uterus is attached to the abdominal wall;" and, again, in speaking of the Alexander operation, he says, "In my judgment its advantages are that it is less apt to interfere with pregnancy or labor." Goelet¹⁷ states that "vaginal fixation is objectionable because it substitutes a fixed anteflexion for a movable posterior displacement." The recent unfavorable reports of complications during labor following it offer another very serious objection to this operation. The best evidence of its inefficiency is that its originator, Mackenrodt, has abandoned it. Leopold¹ claims that recent reports concerning the serious complications arising in cases of pregnancy in vaginofixed uteri furnish a powerful argument against the operation. Bovée¹⁸ states that "we very frequently learn of difficulties complicating the operation of hysteropexy, and in many cases abortion seems to be a direct result." Clarke¹⁹ says that "ventrofixation may interfere very seriously with the progress of pregnancy, and should rarely be resorted to in virgins or in women who have not reached the menopause, unless the adnexa have been removed by reason of disease or morbid changes;" and he repeats, "It should be again observed that the Alexander operation, as well as hysterorraphy, when resorted to in women who have not reached the menopause, may so firmly fix the uterus as to interfere seriously with the progress of a normal pregnancy. The patient should be made aware of the full consequences of either operation, and be made to recognize the possibility of not being able afterwards to carry a child to the completion of pregnancy." Edebohls²⁰ writes, "Events reported in recent literature have greatly modified the indications for the several retroversion operations. The discussion of the relative merits of these operations must now be carried to a higher plane than that of mere technique and immediate and remote anatomical results.

Their greater or less interference with the functions proper of the uterus, childbearing and childbirth, constitutes the higher standard by which they must be judged;" and, again, "Vaginal fixation of the uterus should never be performed *upon a woman liable to future pregnancies*, under any conditions, when ventral fixation or shortening of the round ligaments will meet the indications just as well or better," and, still again, "Neither vaginal fixation nor ventral fixation should be performed *upon a woman liable to future pregnancies*, for the cure of an uncomplicated retroversion of the uterus," with the one exception of tearing or sloughing off of one of the round ligaments from the uterine cornu during or after an Alexander operation, in which case he recommends ventral fixation as the lesser of the two evils. Michaelis²⁰ concludes "that while in the majority of cases of labor following ventrofixation of the uterus the process takes a favorable and uneventful course, in not a few, complications of considerable gravity may readily be encountered, and, therefore, the opinion which is so universally held that ventrofixation has no special influence on subsequent labors is not fully justified." Stinson²¹ writes, "From a careful study of cases I believe that operations such as vaginal fixation and ventral fixation should not be performed. With vaginal fixation the uterus is placed in pathologic ante flexion, where it becomes fixed by adhesions, which will in all probability interfere with pregnancy and labor, possibly leading to uterine rupture, with fatal results to mother and child; otherwise, retroversion is likely to recur. With ventral fixation the uterus is changed from a pelvic to an abdomino-pelvic organ, more or less fixed according to the extent of the parietal adhesions, which, if not dense, may give way and the old displacement recur; conception is less likely to occur on account of the high and more or less fixed position of the uterus; there is liability of intestinal adhesions, etc.; occasionally the patient dies from the operation or from sepsis; and ventral hernia is a possible contingency. Should the patient become pregnant, she is liable to abort; and should labor go to full term, it will in all probability not be a normal one,—possibly it will be greatly prolonged, or rupture of the uterus, with loss of mother or child or both may occur." Finally, Condamin,²² in speaking of the cure of ante flexion by hysteropexy, states that while pregnancy is undoubtedly rendered possible by the operation, it cannot be denied that it may be influenced unfavorably by the fixation.

Such is the spontaneous affirmation of men of undoubted ability and reputation, who, while favoring the various operations for the relief of the gynecologic condition, deplore their unfavorable influences upon the subsequent obstetric state.

(4) REPORTED CASES OF GESTATIONAL DISTURBANCE AND DYSTOCIA
FOLLOWING ANTERIOR UTERINE FIXATION.

Let us now examine for a moment the notes of the actual cases of dystocia and gestational disturbances that have, from time to time, been reported in the current medical literature. In selecting these cases I have included in my list every instance of unusual occurrence in the patient's history that may in any way have a direct bearing upon the operation. Thus, if a woman who had previously borne children without any disturbing feature during the gestations and labors, should, in a pregnancy subsequent to an operation for anterior fixation of the uterus, suffer from localized pains or exaggerated vomiting during the gestation, or if at the time of labor a malpresentation be noted or some form of operative interference be required without other appreciable cause, we are justified in assuming the relation of cause and effect, and in ascribing the pathologic feature to the operative procedure. Working upon such a basis as this I have collated the following cases of gestational and eutocic disturbances subsequent to the operation of ventrofixation presented in about their chronologic sequence:

(1) Küstner²⁸ relates the history of a woman in the third month of a pregnancy complicated by a large myoma of the uterus. At the operation performed November 29, 1888, the myoma was enucleated and the uterus fixed to the anterior abdominal wall. Abortion, with the discharge of a four-months' fetus, occurred on December 21, three weeks after the operation. (This may have resulted from the double injury to the uterus,—the myomectomy plus the hysteropexy.)

(2) Küstner²⁸ also relates a similar case in which abortion followed.

(3) Gottschalk²⁹ records the case of a tertipara, aged 28 years, who was operated upon on November 10, 1889, for the removal of an intraligamentous ovarian cyst of the left side, followed by a ventrofixation of the retroflexed uterus. Conception occurred eleven months later (October, 1890); there were irregular bleedings from the middle of December until January 3, 1891, when the fetus was expelled. Examination showed that the anterior wall of the uterus was unusually thick, and the posterior wall as thin as paper, threatening uterine rupture. The posterior lip of the cervix was high up, almost out of reach, and quite above the true pelvis.

(4) At a subsequent pregnancy this patient aborted again. (See Leon's article.)³⁰

(5) Sanger³¹ reports the case of a multipara who had borne four living children and had had one miscarriage prior to the operation of hysteropexy, on December 26, 1887. She conceived in March, 1889,

fifteen months after the operation. During the pregnancy she suffered from pain in the line of incision, and there was noted a lack of development in the long diameter of the uterus. She miscarried at six months, the fetus corresponding to but three months' growth. Six weeks later the uterus lay anteverted as before.

(6) The same patient conceived again in April, 1890, and during the later months of this pregnancy she suffered much from loss of appetite, and pain in the abdomen and back, with some elevation of temperature. The vertex presented; labor occurred February 7, 1891, and was very slow in coming on; engagement did not occur; the pulse was poor, and the temperature rose to 102.1° F. She was finally delivered of a dead child by version by both feet. A chill followed the delivery, the temperature rising to 104.9° F., but falling again in twenty-four hours. A normal puerperium followed. The uterus was freely movable, although fixed anteriorly.

(7, 8, 9) Von Winiwarter²⁰ records three pregnancies, in all of which the patients for the first three months of gestation suffered from severe pain in the line of the cicatrix. Two were delivered at term after normal labors; the third had a premature labor at seven and a half months following ill usage at the hands of her husband.

(10) Fraipont²¹ records another pregnancy terminating in a premature delivery at about the same period as the preceding.

(11, 12, 13) Säger²² records a premature delivery at eight months, and two abortions, at three and five months, subsequent to ventrofixation.

(14) Jacobs²³ mentions the case of a woman, 26 years of age, who had an abdominal hysteropexy performed May 27, 1890, for adherent and painful retroflexion of the uterus. She conceived in the following July or August, and at the third month suffered from malaise and slight pains in the line of incision. She had a normal labor in May, 1891.

(15, 16) Leon²⁴ mentions two abortions during the first month of gestation after the performance of ventrofixation.

(17) Löhlein²⁵ records the case of a tertipara, aged 30 years, in whom a fixation was done July 27, 1892, for perineal tears and deep uterine prolapse. In March, 1893, severe vomiting appeared, following cessation of the menses. In the third month the vomiting was more distressing than in former pregnancies. In the sixth month hands could be felt extending from the anterior wall of the fundus uteri to the under portion of the abdominal scar. Delivery occurred on December 21, 1893, and during labor a firm band could be seen and felt, extending from the top of the uterus to the abdominal wound, tightening and relaxing as the uterus contracted and relaxed.

The patient bore a healthy child, and was safely delivered. An examination in March showed the uterus well restored to its normal state of antelexion, and movably fixed at a normal height. In this case it seemed as though the bands of adhesion grew with the uterine enlargement, and shortened again as it subsided.

(18) The same author records an additional case of a woman, aged 35 years, who, while in the second month of gestation, underwent a myomectomy on November 22, 1892. After partial resection of the uterine wall and suturing, the retroflexed uterus was fixed to the abdominal wall at the point of removal of the tumor by means of an upper and lower silk stitch. The uterine cavity was not opened, but the patient aborted on the following day. Five months later Löhlein was called to see the woman on account of obstinate nausea and vomiting, and a pregnancy of three months was established. This progressed to term on September 13, 1893, but owing to uterine inertia delivery by the forceps was necessitated. Both mother and child recovered.

(19) Goodwin⁸ records the case of a quartipara who had been operated upon by Kelly in 1889 for retroflexion uteri. Labor occurred in January, 1894. The abdomen was greatly distended, resting partially upon the thighs instead of the pelvis. The uterus was held to the abdominal attachments in front, but the posterior wall was stretched and thinned, and there was an apparent overabundance of amniotic liquid. The long diameter of the uterus was from side to side instead of from above downward. The veins of the vulva, vagina, and thighs were swollen and painful, and the cervix was long, very high up, and far back to the left; it admitted one finger, but no presenting part could be felt. With strong labor-pains the breech presented; the patient complained bitterly of pain in the left side and in the abdominal incision. The child was delivered spontaneously, but still-born; the placenta was delivered normally. The after-pains were severe and long continued. Sepsis followed the labor, and an abdominal section was performed five months later. The uterus was found to be firmly held to the anterior abdominal wall. There was a mass of exudate to the left side which was not disturbed; the right tube and ovary were removed.

(20) Frommel⁹ reports a breech presentation with extraction by the feet following a hysteropexy.

(21) Poltowicz¹⁰ records a case of a woman 44 years of age, upon whom hysteropexy was performed October 24, 1889, for complete dextroversion of the uterus with ovarian prolapse. The patient had previously passed through nine normal gestations and pregnancies. The last menstruation had occurred at the beginning

of October. On December 10 and 11, she suffered from strong uterine hemorrhage followed by the discharge of an embryo and placenta (abortion at two months).

(22) Goubaroff* mentions a primipara, aged 23 years, who had been operated upon by Küstner on June 2, 1890, for retroversion of the uterus. Ventrofixation was performed, the uterus being fixed by three silkworm-gut sutures. Conception subsequently occurring, after a normal pregnancy labor took place in February, 1894. Examination showed the fetus to be lying in a transverse position, the left shoulder presenting. The cervix was so high up that it could not be reached without the aid of anesthesia; the upper portion of the vagina was contracted and the os completely closed; the posterior wall of the uterus was very greatly distended and threatened rupture; the urine was albuminous. To avoid the danger of rupture of the uterus, the patient having been in labor four days and the cervix still being closed, it was determined to deliver the child by a Säger-Cesarean section. On opening the abdomen very firm and solid bands of adhesion were found extending longitudinally the width of a finger between the uterus and the inner surface of the anterior abdominal wall, the fundus uteri bearing a depression from which extended a solid bridle which required clamping and division. The veins of the broad ligament were very greatly enlarged. Both mother and child survived.

(23) Mackenrodt* quotes the case of a patient upon whom ventrofixation had been performed, the uterus being secured by two silkworm-gut sutures. When seen the patient had been in labor three days. The cervix was found high up, so that the entire hand had to be introduced into the vagina in order to reach it; the os had not dilated. Each pain drove the entire uterine wall into the pelvic inlet. Bullet-forceps were used to drag down the cervix, but the os was still so high up that during version, after one entire leg was out of the uterine cavity, it lay completely within the vagina. After two and a half hours' hard work the manual dilatation and version were completed and a living child delivered, but during the necessary manipulations the fixation sutures tore with a distinct jerk, where-upon the uterus became freely movable.

(24) Gallet* reports the case of a primipara, aged 30 years, who was operated upon in April, 1888, for a small ovarian cyst. The uterus at this time was suspended by Olshausen's method. The patient married in 1892, and shortly became pregnant. For three or four weeks during the early gestation she suffered from severe pains in the lower angle of the ventral cicatrix; these finally subsided, and labor occurred at term in May, 1893. The head presented in the

right occipito-posterior position; rotation failed to occur, and the patient was delivered by forceps. Both mother and child recovered.

(25) In another patient with irreducible retroversion of the pregnant uterus, complicated by ovarian cyst, operation was performed in September, 1899; abortion was induced, the ovary was removed, and abdominal hysteropexy performed. In April, 1891, she was found to be two or three months pregnant. During the first three months she had suffered constantly from severe pains in the lower angle of the abdominal cicatrix, which gradually disappeared. The ultimate pregnancy and labor were normal.

(26) Another patient, 43 years of age, who had given birth to five children and who had had one miscarriage, the last pregnancy occurring six years before the operation, had an abdominal hysteropexy performed on October 29, 1892, for retrodisplacement of the uterus. Suppression of the menses occurred in September, 1893; pregnancy and labor were normal, but on the fifth day of the puerperium a severe secondary postpartum hemorrhage occurred from uterine relaxation.

(27) Collette²⁸ records the case of a patient, 35 years of age, who had given birth to a child and had had one abortion at one and a half months. More than five years after the performance of an abdominal hysteropexy the woman became pregnant, passed through a normal gestation, but suffered at labor from uterine inertia, which necessitated delivery by the forceps. Both mother and child recovered.

(28) Milander²⁹ reports the case of a sextipara, 28 years of age, upon whom suspension of the uterus had been performed on February 23, 1893, to remedy prolapse of the anterior vaginal wall and retroflexion of the uterus. Her previous pregnancies and labors had been normal, and she had once aborted. At a subsequent labor, on September 18, 1894, the fundus uteri was found two fingers' breadth below the umbilicus, while above the symphysis there was a thickened scar-tissue, the width of a hand, in the linea alba. The abdominal wall was depressed at this place. The child had been expelled, but the placenta was retained, although there was but slight hemorrhage. The placenta was readily removed by friction, and the patient made an uninterrupted recovery.

(29) In another multipara (duodecipara) the operation of ventrofixation was performed, because of prolapse of the vagina and uterus, on May 5, 1893. A subsequent labor occurred March 27, 1895. The uterus was found two fingers' breadth above the umbilicus, the child resting in a transverse position, with the head upon the right side of the pelvis, the breech upon the left. The anterior abdominal wall was adherent to the anterior wall of the uterus at the site of the

former suture. Palpation of the round ligaments demonstrated that it was not the fundus of the uterus that was found two fingers' breadth above the umbilicus, but that it was the posterior wall of the uterus which was greatly distended, while the fundus itself was lying two fingers' breadth below the umbilicus. The heart-sounds were heard in the median line. The vulva was swollen, while the cervix was drawn strongly backward against the promontory of the sacrum, the external os admitting two fingers. The membranes had ruptured, and the scapula, arm, and a loop of the umbilical cord could be felt. As dilatation was slow and pains weak, De Ribes's bag was introduced, but was only partially successful. Under narcosis it was possible to dilate the os and to make version and extraction. The child was asphyxiated but readily revived. There was a tear of the pelvic floor which was easily united.

(30) He also records the case of a primipara upon whom the operation of ventrosuspension had previously been performed. Examination showed that the urine was albuminous. The child was in a transverse position. The os was so high that it could only be reached by introducing the entire hand into the vagina under narcosis, and then it was found to be undilated. The head was prevented from entering the pelvis by marked adhesions which existed between the anterior uterine wall and the abdominal parietes. An abdominal incision was made and attempts made to break up the adhesions, but these were abandoned because of hemorrhage. Cesarean section was then performed. Both mother and child survived.

(31) Strassmann¹⁰ records the case of a multipara, aged 36 years, whose uterus had been suspended to the abdominal wall with catgut sutures during an abdominal section in which an ovarian cyst of one side had been removed. In a subsequent labor the descent of the child was hindered by lack of uterine mobility, necessitating an easy instrumental delivery.

(32) In another case the application of the forceps was made necessary because of dangerous and extremely painful traction at the site of the fixation. After delivery there was a free postpartum hemorrhage caused by non-retraction of the uterus. It was controlled by a binder and compress.

(33) Kelly¹¹ mentions a patient who, during a pregnancy subsequent to hysteropexy, suffered marked discomfort and dragging due to the attachment of the womb to the anterior abdominal wall. Her labor was normal.

[34, 35] Gottschalk¹² records two cases in which the labors were exceedingly painful, although they terminated successfully.

(36) Fleischlein⁶⁶ records a case of transverse presentation following ventrofixation. The patient was attended by a midwife at first. Version was required, the child perishing during the process. The patient recovered.

(37) Wegener⁶⁷ relates the history of an octipara upon whom a fixation had been performed, the uterus being sutured to the periosteum of the symphysis. The woman had previously had two normal pregnancies and five abortions. The present gestation was absolutely normal; there was no disturbance of the bladder functions. At labor the child was found to be resting in a transverse position, and the cervix was so high that with the entire hand in the vagina it could scarcely be reached. Cephalic version was performed and the child delivered by forceps. Both mother and child survived.

(38) Olshausen⁶⁸ reports the case of a tertipara, who conceived four months after the operation of hysteropexy. During the fourth month of gestation the patient suffered from pains in the cicatrix, associated with a discharge of blood from the uterus. She advanced, however, to term, at which time examination revealed a cervix so high up that even under ether-narcosis it could scarcely be reached with the entire hand in the vagina. The anterior cervical wall was very thick and prevented the entrance of the head into the pelvis, while the posterior wall was very thin, threatening rupture. The child presented by the ear, and was delivered by podalic version. Both mother and child survived.

(39) Norris⁶⁹ records the case of a multipara, aged 23 years, who was operated upon by Noble, on May 22, 1893. In a subsequent pregnancy the thickened uterine wall at the site of the ventral fixation proved an obstacle to delivery, alternately hardening and relaxing with the pains. The posterior wall was exceedingly stretched and attenuated, and uterine rupture was threatened, necessitating the performance of cephalic version and the high application of Tarnier forceps. The child perished from compression of the cord, but the mother recovered. The uterus involuted properly, and remained fixed to the anterior abdominal wall by the silkworm-gut sutures.

(40) Michaelis⁷⁰ reports the case of a multipara, aged 39 years, who had had the appendage on one side removed, and ventrofixation performed by F. Foerster, in the spring of 1894. She had previously given birth to six living children, and had had six miscarriages. Some months after the operation she conceived, but suffered no unusual symptoms during the period of gestation. For one month prior to confinement fetal movements could not be felt, and during the last two weeks the heart-sounds could not be detected. Labor occurred

November 27, 1895. The pains were much more severe than in the previous labors, and after twenty four hours the membranes ruptured spontaneously, the os being only partially dilated. The child occupied a transverse position, the right shoulder presenting with the dorsum posterior. Under chloroform the os was dilated and version performed, a dead and macerated fetus being extracted. Examination then showed that almost the entire anterior wall of the uterus was the seat of a large mass of muscular tissue that markedly diminished the internal dimensions of the uterus. Ten days after delivery the patient suffered from a secondary hemorrhage lasting for two or three days, and four days later there occurred another severe hemorrhage that persisted for a week.

(41, 42) Edebohls⁹¹ records a case in which forceps were necessitated at term, and one case in which the woman died near term, of sepsis arising from the retention of a dead fetus aged 7 or 8 months.

(43) Noble⁹² reports the case of a quintipara, aged 37 years, who had been operated upon by himself, September 13, 1894. She conceived in February or March, 1895, and her pregnancy was practically uneventful. She was attended in labor by Dr. W. E. Parke. The membranes broke at the very onset of labor; the pains were trifling. Noble saw her after twenty four hours. At that time with half the hand in the vagina only the anterior lip of the cervix could be felt. Under anesthesia the os was found undilated, but dilatable. There was also a large tumor formed by the hypertrophied anterior wall and major portion of the fundus, which made a shelf-like projection on which the fetus rested. Attempts at version failed, and Porro's operation was performed. The woman died from sepsis on the sixth day, the disease antedating the Porro operation.

He also reports hitherto unreported cases as follows :

(44) Mayo's case, requiring an easy forceps extraction at term on account of large size of child, and not from complications arising as a result of the operation.

(45) Cameron's case, in which the woman suffered from severe pain in the line of the cicatrix and uncontrollable vomiting during a pregnancy two years subsequent to a ventrofixation. The woman had previously passed through four normal pregnancies. It finally became necessary to induce premature labor, which was accomplished with some difficulty, a living child being extracted. Cameron attributed the trouble to a pulling of the ligaments and adhesions during pregnancy.

(46) Dunning's case, which suffered intensely from nausea and vomiting during the early months of the gestation. The uterus remained in good position after labor.

(47, 48) Kelly, two cases of retained placenta.

(49, 50) Noble, one case of difficult forceps extraction; also a case of painless labor in a twin pregnancy, requiring a forceps delivery. The patient was attended in labor by Dr. Mary H. McLean.

(51, 52) Edgar, repeated miscarriage following spontaneous ventrofixation after abdominal section.

(53) MacLaren, one case in which a miscarriage was threatened, but the patient had at the time of reporting reached the seventh month of gestation.

(54, 55, 56, 57, 58) Five abortions (Maury, Werder, Davenport, —two cases not due to the operation, one after a fall, and the other after a hard day's work; and Ruth, induced).

(59, 60) Two miscarriages (Mundé, at the fifth month, and Kelly, not due to the operation, but following dancing).

As types of the numerous cases of grave dystocia and gestational disturbances that have been reported subsequent to the various operations of vaginofixation I have selected the following cases:

(1, 2) Mackenrodt⁶ reports the case of a patient who was delivered one year after the operation of vaginofixation of a living child by forceps. Eighteen months later she was attacked by a profuse hemorrhage that lasted for seven weeks. The condition diagnosed was placenta prævia. She was delivered at the end of the eighth month of gestation.

(3, 4) He also reports two abortions following the operation.

(5) Graefe¹¹ records the case of a multipara on whom Mackenrodt's operation had been performed, May 6, 1894. Conception occurred November 30, 1894. Colicky pains were noted January, 1895. At labor the child was found in a transverse position and could not be turned by external manipulation. The posterior wall of the uterus was thin, and rupture was imminent. Before labor began the patient had an attack of eclampsia with several convulsions. The cervix was above the pelvic brim and directed upward. Owing to the difficulty encountered and impossibility of speedy delivery of the child through the vagina, a Sanger-Cesarean section was performed. Both mother and child made a good recovery.

(6) He also records the case of a multipara, aged 38 years, who had been operated upon for suspension of the uterus, following the removal, by the vagina of a subserous myoma. At the subsequent labor a prolapse of the cord was found and the child dead. The uterus was finally contracted upon the child, and rupture of that organ was imminent if attempts at version had been made. In view

of the condition present the abdomen was opened and the uterus amputated, the stump being left at the lower end of the womb. The patient died one and a half hours after the operation. On post-mortem examination the anterior wall of the uterus above the internal os was found adherent to the vagina. The right broad ligament was very greatly stretched, and contained a rupture that opened the pelvic cavity into the vagina. Through this rent a fatal hemorrhage had occurred.

(7) Strassmann⁶ quotes the case of a patient, aged 35 years, operated upon by Dührssen, on September 5, 1894, on whom an intra-peritoneal vaginal fixation and posterior kolpo-perineorrhaphy had been performed. Conception occurred three months later. At the time of labor, November 29, 1895, the child was found in a transverse position with presentation of the right shoulder and arm, and prolapse of the cord. The cervix was found drawn up above the promontory of the sacrum, and a diverticulum of the anterior uterine wall projected into the vagina. With great difficulty version was accomplished and the child extracted after incision of the os. There was severe postpartum hemorrhage, which was controlled by a compress and binder. Rupture occurred at the site of the cicatrix. The patient made a good recovery, as did also the child.

(8) Velde⁶ records a case of labor subsequent to vaginofixation. The anterior vaginal fornix was drawn up very high, the uterus was sharply anteflexed, and the cervix displaced to the right. The child was transverse, and the uterus contracted so firmly that version was impossible. Porro's operation was performed and the uterus found to be ruptured. Both mother and child perished.

(9) Wertheim⁶ records the case of a multipara who had been operated upon by Schauta according to Dührssen's method. At the time of labor the cervix was found to be high up in the pelvis, so that the entire hand had to be inserted into the pelvis in order to feel it. The anterior wall of the vagina was drawn up behind the symphysis, so that the scar of the previous operation could scarcely be felt. The anterior lip of the cervix was thickened, the posterior lip and posterior uterine wall were exceedingly thin. But little of the uterus remained within the pelvis. The fundus uteri was closely and firmly adherent to the vaginal wall. The fetus lay in a transverse position with the head to the right side. The labor-pains were strong, but the cervix dilated very slowly, the anterior wall of the uterus being drawn down above the symphysis, while the posterior wall became greatly distended, threatening rupture. Under deep anesthesia combined version was performed with great difficulty, and a foot drawn down. Three hours later a living child was delivered. Both mother and child

recovered. At a subsequent examination the attachment of the uterus to the anterior vaginal wall was found to be in no way weakened.

(10) Ruhl¹⁰ records the case of a patient in whom vaginofixation had been performed. At a subsequent labor podalic version was required on account of great cervical rigidity.

(11) He also relates the case of a multigravida whose previous labors had always been easy. Pregnancy occurred nine months after the operation of vaginal fixation for retroflexion and adherence of the uterus. During the gestation there was noted some difficulty in emptying the bladder. The labor-pains were good, but no progress was made, and when the patient was seen there was found marked stretching of the posterior uterine wall. The child had been dead for twenty-four hours. The head had entered the pelvis and was contained in a diverticulum of the uterine wall so firmly that it could not be dislodged without the use of an anesthetic. The cervix was drawn up so high that it was above the promontory of the sacrum, and could only be reached with great difficulty. Under deep anesthesia it was possible to dislodge the head and push it up. The os was like an iron ring and would admit four fingers only; efforts at further dilatation were not successful. With considerable difficulty version was performed, but even then the child could not be delivered. It was then determined to perforate the head, which was done with difficulty. The extraction of the child was exceedingly hard because of the thickened uterine tissue which formed a sort of girdle, so strong that it became necessary to incise it with a tenotome to permit of delivery. But little hemorrhage followed the incision. The uterus was finally emptied, the patient making a good recovery.

(12) Another patient, a *tertipara*, suffered from subinvolution which was first treated by curetting and then by fastening the womb to the vaginal wall. During the subsequent pregnancy the woman also suffered from difficulty in emptying her bladder. When labor came on, the cord prolapsed as soon as the membranes ruptured, the pains being very strong. Upon examination the cervix was found above the sacral promontory, the fetal head again being contained in a diverticulum of the uterine wall. It was impossible either to replace the cord or to make version. To effect delivery it was necessary to make an incision into the anterior lip of the cervix eight centimetres in length; no special hemorrhage followed. The incision was also extended laterally, and the tissues afterwards united with catgut sutures. It was then possible to extract the child with forceps, when the placenta was removed and the incision closed, as stated. The patient made a good recovery, and the uterus was subsequently found in a normal position.

(13) Dührssen* reports the case of a deutipara, 29 years of age, whose former births had been normal, and who was operated upon on April 25, 1894, an intraperitoneal vaginofixation having been performed. On February 18, 1895, she suffered from a miscarriage in the fourth month, due to a fall from a step; there was a prompt expulsion of the fetus and placenta after uterine tamponnade. On the 14th of the following December she was again in labor. The pains were strong, but the cervix would not dilate. The temperature and pulse were normal. The child presented in the first position of the occiput, the head resting deeply within the pelvis. The pains became severe and occurred every five minutes. The fetal heart sounds ranged between 156 to 162. Internal examination finally showed the cervix dilated sufficiently to admit two fingers. The posterior lip was thickened greatly. Fetal life was threatened, as shown by an escape of meconium. Under ether the cervix was incised in front, behind, and to the right side, and the fetus extracted with forceps, living, but slightly asphyxiated. It died during the night. There was a placenta membranacea.

(5) THE PERCENTAGES, VARIETIES, AND CAUSES OF THE ABNORMALITIES.

From the foregoing tabulation of cases it becomes very evident that the operations for anterior fixation of the uterus may result very disastrously in subsequent gestations and parturitions. Just what the percentage of abnormalities is has not as yet been decided, and it will require a vaster accumulation of facts before accurate information upon this matter can be obtained. After great difficulty in weeding out duplicate reports and verifying others, I have succeeded in grouping together in an accompanying table every reported case, normal and otherwise, of pregnancy following ventrofixation of the uterus, the operation most generally adopted. These now number 179 instances. Of this series, in 125 cases, or 67.03 per cent., a normal gestation was noted; in 111 cases, or 62.01 per cent., labor was absolutely normal; and in 68 cases, or 37.98 per cent., there was an absolutely normal condition throughout both gestation and labor. This leaves a total of 111 cases, or 62.01 per cent., in which some abnormality was noted, either in gestation, in labor, or in both. A close examination of the gestational disturbances and of the difficulties during parturition reveals the following interesting facts: In 16 cases, or 8.93 per cent., pain, more or less severe, was experienced in the line of the abdominal incision either during gestation or at the time of labor; in 4 cases, or 2.23 per cent., excessive vomiting was observed; in 10 cases, or 5.58 per cent., the cervix was situated far

up, at or above the pelvic brim, and directed posteriorly or to one or the other side; in 9 cases, or 5.02 per cent., uterine rupture was threatened at the time of labor; uterine inertia was noted five times, or in 2.79 per cent. of the cases of pregnancy, and 22.79 per cent. of the cases of dystocia; in 15 cases, or 8.37 per cent., the patients aborted, and in 10 cases, or 5.58 per cent., there were noted miscarriages or premature labors: troubles of various kinds during gestation were noted in 15 instances, or 8.37 per cent., and difficulties at parturition in 22 cases, or 12.29 per cent.; in 17 cases, or 9.49 per cent., the results of the pregnancy are not noted.

In investigating the features of the dystocia noted the following facts are worthy of mention: In 9 cases, or 5.02 per cent., there were abnormal presentations of the fetus. These were distributed as follows: Once, or in 0.55 per cent., the ear presented; twice, or in 1.11 per cent., the breech presented; and 6 times, or in 3.35 per cent., the child lay transversely; when compared to the usual frequency of trunk presentations, about 14 per cent., the present percentage is especially striking. Version was required in 9 instances, or 5.02 per cent. of the pregnancies and 40.9 per cent. of the difficult labors. Forceps were employed 11 times, or in 6.14 per cent. of the pregnancies, and in 50 per cent. of the cases of dystocia. In three instances, or 1.67 per cent. of the pregnancies, Cesarean section was performed, and in the same percentage of cases postpartum and puerperal hemorrhages were noted. The placenta was retained also three times (1.67 per cent.). The fetal mortality was 17.87 per cent., and the maternal 1.67 per cent. The latter is not altogether attributable to the operation, for one death was the result of chronic valvular disease of the heart. The true maternal mortality is, therefore, but 1.11 per cent. (two deaths).

An inquiry into the actual causes of the foregoing difficulties elicits the following results: The great frequency of the transverse presentations is undoubtedly due to an inability on the part of the uterus to properly expand in its long diameter. Its growth being impeded in this direction a compensatory dilatation takes place in the transverse and antero-posterior diameters. The fetal ellipse finds the greatest room in these diameters, and by its further growth and development contributes to the undue stretching and attenuation of the posterior uterine wall, the process at times being carried to the verge of rupture. This condition is especially well illustrated in the second of Milander's cases. The stronger the bond of union between the anterior uterine wall and the abdominal parietes the greater is the probability of such an occurrence. If properly performed, hysteropexy should result, not in such a firm adherence between these

structures, but in the formation of a partially elastic band, which, while securing and maintaining an anterior position of the uterus, does not in any way interfere with its mobility. The suturing of the anterior wall of the uterus, which is earnestly advocated by some, is particularly to be deprecated, in that it defeats this very desirable object; a too firm fixation is thereby secured, and subsequent difficulties in gestation and parturition engendered. To prevent this complication Leopold⁷ and others favor the employment of absorbable sutures, while others recommend the removal of the fixation-sutures within two weeks after the operation. If the fixation be properly performed, Fraipont⁸ claims that the uterus does not increase especially in its posterior portion, but quite uniformly, so that, as might be expected, the fundus gradually detaches itself from the abdominal wall, or the adhesions—not including the muscular and fibrous structure of the uterus and abdominal wall, but serous and cellular tissue only—stretch to accommodate themselves to the increased tension. As the uterus undergoes involution it is restored to its original condition before the onset of the disease, that rendered the fixation obligatory. The pains and traction at the site of the incision, and the difficulties experienced in the mechanism of the labor, are the direct result of dragging upon too firm adhesions, which a proper technique would have avoided.

The abnormally high situation of the cervix uteri, at times altogether above the pelvic brim, is another element in the dystocia, the direct outcome of an improper technique in the performance of the hysteropexy. The object of the latter operation is not to convert a pathologic retrodisplacement into an equally pathologic ante flexion, but merely to restore and retain the fundus uteri in its normal position of moderate ante flexion. This can only be accomplished by fixing the uterus at a point sufficiently low to prevent undue upward traction upon the cervico-vaginal attachments, but not so low as to cause a decided bending at the internal os, or a marked anteversion of the organ. Leopold⁷ advises fixation at a point not more than half an inch above the upper border of the symphysis as most conducive to this end. Undoubtedly it is true that the lower the fixation the greater the percentages of difficulties in subsequent gestations,—a statement the truth of which is substantiated by an inquiry into the relative percentages of dystocia following the two operations of ventral and vaginal fixation. Noble⁹ states that over 25 per cent. of pregnancies subsequent to the operations of Dührssen and Mackenrodt abort, and Dührssen¹⁰ himself says that of patients treated for retrodisplacement by means of pessaries 16.6 per cent. abort, while of those treated by fixation of the uterus to the vagina 27.2 per cent.

abort. The very large number of difficult labors reported after the operation of vaginofixation is also a strong proof of the accuracy of this assertion. The abortion in these cases is the result of a duplex cause,—the reflex irritation produced by the fixation-sutures and adhesions upon the developing organ, and the actual mechanical interference with its growth. In those cases that advance to term the abnormal direction of the uterine axis—back towards the sacral promontory—not only renders the uterine pains ineffective, but also prevents the proper retraction of the longitudinal muscular fibres of the cervix, so that dilatation does not proceed normally, the labor thereby being mechanically obstructed by this condition as well as by the immensely hypertrophied anterior uterine wall. In the vaginally fixated cases to the foregoing abnormalities must be added a condition of marked cervical rigidity, the result of the mass of cicatricial tissue that is formed about the upper portion of the cervix whereby its dilatation is absolutely prevented.

One other danger following the imperfect performance of anterior uterine fixation is an actual mechanical interference—through the agency of the adhesions—with uterine contraction, resulting during labor in a degree of uterine inertia, and after labor favoring the onset of postpartum and puerperal hemorrhages. This condition was noted in a number of the reported cases.

(6) CONCLUSIONS.

The following deductions seem justifiable in the light of the foregoing reflections :

(1) From an obstetric, as well as gynecologic, point of view the operation of ventrofixation for the cure of uterine displacement is the most desirable in its results.

(2) If improperly performed, any of the operations of anterior fixation of the uterus may exert a deleterious effect upon subsequent pregnancies.

(3) This evil influence increases in direct proportion to the low implantation of the fixation-sutures,—hence, the vaginal operations are especially dangerous.

(4) The abnormal conditions noted include pain and traction at the site of the incision, premature termination of the gestation, difficulties in micturition, excessive nausea and vomiting, abnormal presentations of the fetus, mechanical obstruction to labor, uterine inertia, cervical rigidity, uterine rupture, placental anomalies, and postpartum and puerperal hemorrhages.

(5) Over half of the subsequent gestations and labors offer some abnormal condition.

Operator.	% Success.	Normal Preg- nancies.	Normal Labors.	Abor- tions.	Mal- formations.	Obstetrical Complications.	Dystocia.	Unmis- ter- ried Preg- nancies.
1. Barst.	1	1	1					
2. Barst.	1	2	2					
3. Barst.	1	2	2					
4. Barst.	1	1	1					
5. Barst.	1	1	1					
6. Barst.	1	1	1				1, inertia; forceps.	
7. Barst.	1	1	1					
8. Barst.	1	1	1					
9. Barst.	1	1	1					
10. Barst.	1	1	1					
11. Barst.	1	1	1					
12. Barst.	1	1	1					
13. Barst.	1	1	1					
14. Barst.	1	1	1					
15. Barst.	1	1	1					
16. Barst.	1	1	1					
17. Barst.	1	1	1					
18. Barst.	1	1	1					
19. Barst.	1	1	1					
20. Barst.	1	1	1					
21. Barst.	1	1	1					
22. Barst.	1	1	1					
23. Barst.	1	1	1					
24. Barst.	1	1	1					
25. Barst.	1	1	1					
26. Barst.	1	1	1					
27. Barst.	1	1	1					
28. Barst.	1	1	1					
29. Barst.	1	1	1					
30. Barst.	1	1	1					
31. Barst.	1	1	1					
32. Barst.	1	1	1					
33. Barst.	1	1	1					
34. Barst.	1	1	1					
35. Barst.	1	1	1					
36. Barst.	1	1	1					
37. Barst.	1	1	1					
38. Barst.	1	1	1					
39. Barst.	1	1	1					
40. Barst.	1	1	1					
41. Barst.	1	1	1					
42. Barst.	1	1	1					
43. Barst.	1	1	1					
44. Barst.	1	1	1					
45. Barst.	1	1	1					
46. Barst.	1	1	1					
47. Barst.	1	1	1					
48. Barst.	1	1	1					
49. Barst.	1	1	1					
50. Barst.	1	1	1					
51. Barst.	1	1	1					
52. Barst.	1	1	1					
53. Barst.	1	1	1					
54. Barst.	1	1	1					
55. Barst.	1	1	1					
56. Barst.	1	1	1					
57. Barst.	1	1	1					
58. Barst.	1	1	1					
59. Barst.	1	1	1					
60. Barst.	1	1	1					
61. Barst.	1	1	1					
62. Barst.	1	1	1					
63. Barst.	1	1	1					
64. Barst.	1	1	1					
65. Barst.	1	1	1					
66. Barst.	1	1	1					
67. Barst.	1	1	1					
68. Barst.	1	1	1					
69. Barst.	1	1	1					
70. Barst.	1	1	1					
71. Barst.	1	1	1					
72. Barst.	1	1	1					
73. Barst.	1	1	1					
74. Barst.	1	1	1					
75. Barst.	1	1	1					
76. Barst.	1	1	1					
77. Barst.	1	1	1					
78. Barst.	1	1	1					
79. Barst.	1	1	1					
80. Barst.	1	1	1					
81. Barst.	1	1	1					
82. Barst.	1	1	1					
83. Barst.	1	1	1					
84. Barst.	1	1	1					
85. Barst.	1	1	1					
86. Barst.	1	1	1					
87. Barst.	1	1	1					
88. Barst.	1	1	1					
89. Barst.	1	1	1					
90. Barst.	1	1	1					
91. Barst.	1	1	1					
92. Barst.	1	1	1					
93. Barst.	1	1	1					
94. Barst.	1	1	1					
95. Barst.	1	1	1					
96. Barst.	1	1	1					
97. Barst.	1	1	1					
98. Barst.	1	1	1					
99. Barst.	1	1	1					
100. Barst.	1	1	1					

(6) About 14 per cent. of the women suffer from abortions or miscarriages, and over 12 per cent. show dystocia in varying degrees, after hysteropexy, while over 27 per cent. abort after vaginofixation.

BIBLIOGRAPHY.

- ¹ *Matthew D. Mann*: "Intra abdominal Shortening of the Round Ligaments for Retro-displacements of the Uterus," *Medical News*, March 23, 1895.
- ² *Cushing*: "Backward Displacements of the Uterus," *Annals of Gynecology and Pædiatry*, September, 1893.
- ³ *George R. Fowler*: "A New Method of Hysterorrhaphy: Ventral Fixation by Means of the Detached and Replaced Urachus," *New York Medical Journal*, October 5, 1895.
- ⁴ *Hiram N. Vineberg*: "A New Method of Performing Vaginal Fixation," *American Gynecological and Obstetrical Journal*, June, 1896.
- ⁵ *Carl Hennig*: "Ventrofixation of the Retroflexed or Retroverted Uterus," *American Medico-Surgical Bulletin*, May 1, 1894.
- ⁶ *A. Mackenrodt*: "The Technic of Vaginofixation," *New York Journal of Gynecology and Obstetrics*, January, 1894; also "Die Technik der Vaginofixation in Beziehung zu den Resultaten derselben," *Berliner klinische Wochenschrift*, July 30, 1894.
- ⁷ *G. Leopold*: "Criticism of Vaginofixation," *Centralblatt für Gynäkologie*, No. 6, February 8, 1896.
- ⁸ *X. O. Werder*: "Vaginal Fixation in Retrodeviations of the Uterus, with some Remarks on Vaginal Cœliotomy," *Journal of the American Medical Association*, August 24, 1895.
- ⁹ *A. Dührssen*: "Ueber Geburtsstörungen nach Vaginofixation, ihre Bedeutung, Behandlung, und Verhütung," *Berliner klinische Wochenschrift*, Nos. 13 and 14, March 30 and April 6, 1896, S. 278 u. 301.
- ¹⁰ *E. Wertheim*: "Neue Methode der Vaginalen Antefixatio Uteri," *Centralblatt für Gynäkologie*, No. 10, March 7, 1896.
- ¹¹ *George M. Edebohl*: "The Indications for Ventral Fixation of the Uterus," *Medical News*, March 14, 1896, p. 282.
- ¹² *Henry T. Byford*: "Anterior Suspension of the Uterus and Shortening of the Round Ligaments by Vaginal Section," *American Gynecological and Obstetrical Journal*, June, 1896.
- ¹³ *A. Mackenrodt*: "The Influence of Suspension of the Uterus upon Labor," *Monatsschrift für Geburtshülfe und Gynäkologie*, 1895, Bd. 11, H. 5.
- ¹⁴ *M. Graefe*: "Ueber schwere Geburtsstörungen infolge von Vaginofixatio Uteri," *Monatsschrift für Geburtshülfe und Gynäkologie*, 1895, Bd. 11, H. 6, S. 472.
- ¹⁵ *R. Olshausen*: "Ueber Behandlung der Retrodeviationen des Uterus," *Zeitschrift für Geburtshülfe und Gynäkologie*, 1895, Bd. xxxii, H. 1, S. 14.
- ¹⁶ *Charles P. Noble*: "A Consideration of Some of the Newer Problems in Abdominal and Pelvic Surgery in Women," *American Journal of Obstetrics*, December, 1895.
- ¹⁷ *Augustin H. Goelet*: "The Surgical Treatment of Retrodeviations of the Uterus," *Transactions of the New York State Medical Society*, January 28, 1896.
- ¹⁸ *J. Wesley Bruce*: "Vaginal Fixation of the Uterus," *Vagina Medical Monthly*, March, 1896.
- ¹⁹ *Augustus P. Clarke*: "A Consideration of the Value of the Alexander Operation compared with that by Anterior Fixation of the Uterus," *Journal of the American Medical Association*, March 14, 1896.
- ²⁰ *L. M. Michaels*: "Ventrofixation of the Uterus; its Effect on Subsequent Labor," *American Medico-Surgical Bulletin*, March 14, 1896, p. 346.

- ¹¹ *J. Cœlin-Journe*: "Treatment of Retroposed Uteri: Choice of Operation, with a Review of Seventy-six Operative Cases," *Therapeutic Gazette*, May 15, 1896.
- ¹² *Condamin*: "The Treatment of Antelexion by Hysteropexy," *Le Mercredi médical*, No. 20, 1894.
- ¹³ *Küstner*: "Zur Indikationsstellung und Methode des Laparotomie wegen Retroflexio Uteri," *Verhandlungen der deutschen Gesellschaft für Gynäkologie, Dritter Kongress*, June 12-14, 1889, S. 385.
- ¹⁴ *S. Gottschalk*: "Zur Frage des Einflusses der Ventrofixatio Uteri auf spätere Schwangerschaft," *Centralblatt für Gynäkologie*, No. 8, February 21, 1891, S. 154, 397.
- ¹⁵ *M. Sänger*: "Ueber Schwangerschaft nach konservativer Ventrofixatio Uteri Retroflexi," *Centralblatt für Gynäkologie*, Bd. xv, H. 16, April, 1891, S. 305; also October 31, S. 881.
- ¹⁶ *Von Winiwarter*: Reported by Fraipont in *Revue des Maladies des Femmes*, de J. Chéron, July, 1891.
- ¹⁷ *F. Fraipont*: "De la Grossesse après l'Hystéropexie abdominale pratiquée pour Rétroflexion utérine," *Revue Médico-Chirurgicale des Maladies des Femmes*, July 25, 1891; *Archives de Tocologie*, July, 1891; *Centralblatt für Gynäkologie*, 1892, S. 263.
- ¹⁸ *M. Sänger*: "Ueber Schwangerschaft nach konservativer Ventrofixatio Uteri Retroflexi," *Centralblatt für Gynäkologie*, October 31, 1891, S. 881.
- ¹⁹ *C. Jacobs*: "Notes cliniques et opératoires sur une seconde Série de cinquante Laparotomies," *Archives de Tocologie et de Gynécologie*, Tome xviii, 1891, p. 728; also quoted by R. Labusquière, "De la Grossesse après l'Hystéropexie," *Annales de Gynécologie et d'Obstétrique*, Tome xxxvi, 1891, p. 123; ref. *Centralblatt für Gynäkologie*, 1892, S. 263.
- ²⁰ *H. Leon (Laroyenne)*: "Des Résultats éloignés dans l'Hystéropexie abdominale antérieure au point de Vue de la Grossesse," *Thèse de Lyon*, 1894.
- ²¹ *H. Löhlein*: "Ueber Schwangerschaften im Ventrifixierten Uterus," *Deutsche medicinische Wochenschrift*, March 15, 1894, Bd. xx. H. 11, S. 241.
- ²² *Helena Goodwin*: "Pregnancy following Ventral Fixation of the Uterus," *American Journal of Obstetrics*, September, 1894.
- ²³ *R. Frommel*: "Zur operativen Behandlung der Retrodeviation des Uterus von der Banchhöhle aus," *Zeitschrift für Geburtshilfe und Gynäkologie*, Bd. xxviii, H. 2, S. 299; quoted in *Gazette de Hôpitaux*, 1894, p. 1054.
- ²⁴ *C. L. L. L.*: "Remarques sur quelques cas d'Hystéropexie d'après les Observations recueillies à la Clinique chirurgicale de Lousanne," *Revue médicale de la Suisse Romande*, Nos. 1 and 3, January 20, and March 20, 1895, pages 21, 135. Quoted in *Centralblatt für Gynäkologie*, 1895, S. 909.
- ²⁵ *A. Goubaroff*: "Dystocie due à une Hystéropexie antérieure ayant nécessité l'Opération césarienne," *La Semaine médicale*, 1895, p. 245.
- ²⁶ *A. Mackenrodt*: "Kritische Bemerkungen über Vaginofixation und Kolpokliotomie in Beziehung zu Schwangerschaft und Geburt," *Monatsschrift für Geburtshilfe und Gynäkologie*, 1895, 11, No. 5, S. 355.
- ²⁷ *Gallet*: "Quelques nouveaux Taits de Grossesse après l'Hystéropexie abdominale," *Archives de Tocologie et de Gynécologie*, Tome xxii, April, 1895, p. 307.
- ²⁸ *Collette*: Quoted by Gallet in preceding article.
- ²⁹ *J. M. M.*: "Ventrifiration des Uteri, Schwangerschaft und Querlage des Kindes," *Zeitschrift für Geburtshilfe und Gynäkologie*, 1895, Band xxxiii, Heft 3, S. 464. Quoted in *La Presse médicale*, January 25, 1896, No. 8.
- ³⁰ *P. Strassmann*: "Zur Kenntnis des Schwangerschafts und Geburtsverlaufes bei antelexitem Uterus," *Centralblatt für Gynäkologie*, 1895, No. 49, S. 1300; also *Archiv für Gynäkologie*, 1896, Band 1, Heft 3.

- ⁴¹ *Howard A. Kelly*: "Suspension of the Uterus," *Journal of the American Medical Association*, December 21, 1895.
- ⁴² *S. Gottschalk*: "Diskussion über die Vorträge der Herren P. Strassmann und Mackenrodt; Ueber Fixation der Uterus," *Centralblatt für Gynäkologie*, 1895, No. 52, S. 1376.
- ⁴³ *N. Flaischlein*: "Zur Ventrofixatio Uteri," *Zeitschrift für Geburtshilfe und Gynäkologie*, Band XXII, S. 191.
- ⁴⁴ *Wegener*: "Ueber einen Fall von Ventrofixatio Uteri mit nachfolgender Schwangerschaft," *Centralblatt für Gynäkologie*, Band XVII, Heft 13, S. 283.
- ⁴⁵ *Richard C. Norris*: *American Gynecological and Obstetrical Journal*, February, 1896, p. 149; also *American Journal of Obstetrics*, Vol. XXXII, p. 938.
- ⁴⁶ *Charles P. Noble*: "Suspensio Uteri with Reference to its Influence upon Pregnancy and Labor," *American Journal of Obstetrics*, August, 1896.
- ⁴⁷ *P. Strassmann*: *Zeitschrift für Geburtshilfe und Gynäkologie*, Band XXXIII, pp. 510-514; also *Berliner klinische Wochenschrift*, No. 29, 1894.
- ⁴⁸ *H. Velde*: "Die Präparate eines Falles von Absolutem Geburtshinderniss nach Vaginæfixation des Uterus," *Berliner klinische Wochenschrift*, 1895, No. 36, S. 793.
- ⁴⁹ *E. Wertheim*: "Ueber Verlauf von Geburt und Schwangerschaft bei Vaginofixirtem Uterus," *Centralblatt für Gynäkologie*, No. 2, January 11, 1896.
- ⁵⁰ *Wilhelm Rühl*: "The Treatment of Dystocia after Vaginal Fixation," *Centralblatt für Gynäkologie*, No. 6, February 8, 1896.
- ⁵¹ *Bar, Chaput, Jeannel, Pinard, Slaviansky*: Quoted by Miländer.⁵⁰
- ⁵² *Baudoin*: "Hystéropexie abdominale antérieure et opérations sous-pubiennes dans les Retrodeviations de l'Uterus," *Thèse de Paris*, 1890, S. 375-408. Quoted by Sänger, *Centralblatt für Gynäkologie*, 1891, S. 307.
- ⁵³ *R. E. Bion*: "Resultate der Ventrofixatio Uteri," *Dissert. Bern*, 1893, S. 6, 8, 11, u. 60.
- ⁵⁴ *H. J. Boldt*: Quoted by Michaelis.⁵⁰
- ⁵⁵ *Condamin*: *Lyon médicale*, LXXIX, 1895, p. 154; also *Province médicale*, 1895, No. 10. Ref. *Centralblatt für Gynäkologie*, 1895, S. 907.
- ⁵⁶ *Currier*: *Centralblatt für Gynäkologie*, Band XVII, Heft 14, S. 324.
- ⁵⁷ *Ferrier*: Quoted by Goodwin.⁵²
- ⁵⁸ *Gouilloud*: *Province médicale*, No. 10, 1895.
- ⁵⁹ *Howitz und Meyer*: "Den operative Behandlung af Retrodeviationes af Uterus," *Gyn. og Obstetrie. Meddelelser*, Band VIII, S. 192-215. Quoted in *Frommel's Jahresberichten für 1891*, S. 667.
- ⁶⁰ *C. Jacobs*: "Remarques, clin. et opér., sur une Série de 50 Laparotomies," *Bull. et Mem. de la Soc. Obstét. et Gyn. de Paris*, Décembre, 1890, p. 33. (See, also, No. 29.)
- ⁶¹ *Kaltenbach*: Quoted by Fraipont;⁵⁷ also by Sänger, *Centralblatt für Gynäkologie*, 1891.
- ⁶² *Kleinwächter*: Quoted by Goodwin.⁵³
- ⁶³ *Klotz*: "Beitrag zur operativen Behandlung der Retroflexio Uteri," *Centralblatt für Gynäkologie*, No. 4, January 24, 1891, S. 97, 114.
- ⁶⁴ *H. Kümmell*: "Zur Fixation des Uterus," *Deutsche medicin. Zeitung*, June 20, 1892, No. 49, S. 557.
- ⁶⁵ *Lamort*: *Thèse de Bordeaux*, 1894.
- ⁶⁶ *G. Leopold*: "Ventrofixatio uteri und Schwangerschaft," *Centralblatt für Gynäkologie*, No. 16, April 18, 1891, S. 317.
- ⁶⁷ *Mouratow*: *Meditzinskoye obozrenié*, 1893, No. 1.
- ⁶⁸ *S. Pozzi*: *Traité de Gynécologie*, p. 504.
- ⁶⁹ *Routier*: Quoted by Baudoin.⁵³
- ⁷⁰ *Routier*: Quoted by Rivière, *Arch. de Tocol. et de Gyn.*, October, 1892.
- ⁷¹ *M. Sänger*: "Operative Behandlung der Retrodeviationen der Uterus und Schücking'sche Vaginalligatur," *Centralblatt für Gynäkologie*, Band XVI, Heft 1, January 9, 1892.

⁷³ *Sinclair*: Medical Chronicle, No. 1, p. 16, 1896.

⁷² *Sperling*: "Zehn weitere Fälle von Ventrofixatio Uteri Retroflexi," Deutsche medicinische Wochenschrift, 1891, No. 5, S. 179.

⁷⁴ *Vlaccos*: Le Progrès médical, Dec. 13, 1890.

⁷⁵ *Von Herff*: "Zur Ventrofixatio Uteri, insbesondere der transperitonealen Methode," Münchener medicinische Wochenschrift, No. 41, October 9, 1894.

⁷⁶ *Fraipont*: Annales de la Société Médico-Chirurgicale de Liège, 1894.

⁷⁷ *A. Dührssen*: "Normal Pregnancy and Delivery after Vaginofixation," Centralblatt für Gynäkologie, No. 49, 1893.

